

"Model Systems in Heterogeneous Catalysis: An Atomic View"

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Model catalyst systems have been prepared by growth of metal nano-aggregates on thin well-ordered oxide films of alumina, silica and magnesia. These systems lend themselves to structural and morphological characterization via scanning probe microscopies and transmission electron microscopy and bridge to a certain extent the materials gap between metal single crystal studies and the investigation of real catalyst samples.

It is possible to infer direct structure-reactivity relations when simple reactions of small molecules are studied. We have applied a variety of surface sensitive techniques, both under ultrahigh vacuum as well as under ambient conditions to relate observations from surface science to those in catalysis under realistic gas pressure conditions.